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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,450	08/26/2003	Michael Doogue	ALLEG-039PUS	5775

22494 7590 06/26/2007

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SUITE 301A
354A TURNPIKE STREET
CANTON, MA 02021-2714

EXAMINER	
NGO, HUNG V	

ART UNIT	PAPER NUMBER
2831	

MAIL DATE	DELIVERY MODE
06/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/649,450	DOOGUE ET AL.	
	Examiner	Art Unit	
	Hung V. Ngo	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-18,29-33 and 36-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-18,29-33 and 36-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11-21-06, 04-03-2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-040058.

Re claim 29, JP 2002-040058 discloses an integrated circuit, comprising: a lead frame having a plurality of leads (7a, 8a, 22-25);

a current conductor portion comprising a coupling of at least two of the plurality of leads, wherein the current conductor portion comprises a loop having an inner dimension (Fig 9);

a substrate (20) having first and second opposing surfaces, the first surface proximate to said current conductor portion and the second surface distal from said current conductor portion; and one or more magnetic field transducers (35) disposed on the first surface of said substrate and proximate to the loop such that the one or more magnetic field transducers are responsive to a current flowing through the loop (Fig 2).

Re claim 30, wherein at least one of the one or more magnetic field transducers is disposed within the inner dimension (Fig 2).

Re claim 31, wherein at least a portion of said current conductor portion has a generally T-shaped cross section (fig 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-18, 32, 33, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-040058 (Machine Translation) in view of Popovic et al (US 5,247,202).

Re claim 1, JP 2002-040058 disclose an integrated circuit, comprising:
a lead frame having a plurality of leads (7a, 8a, 22-25), each one of the leads having a respective length; a current conductor portion comprising a coupling of at least two of the plurality of leads (Fig 9);
a substrate (20) having first and second opposing surfaces, the first surface proximate to said current conductor portion and the second surface distal from said current conductor portion (Fig 3); and
one or more magnetic field transducers (35) disposed on the first surface of said substrate.

Re claim 4, wherein said current conductor portion further comprises a conductive clip coupled to the at least two of the plurality of leads (Fig 9).

Re claim 5, wherein said substrate is disposed having the first surface of said substrate above said conductive clip and the second surface of said substrate above the first surface (Fig 3).

Re claim 6, wherein said substrate is disposed having the first surface of said substrate below said conductive clip and the second surface below the first surface (Fig 3).

Re claim 7, wherein a thickness of the conductive clip is selected in accordance with a current passing through the conductive clip (functioning as claimed).

Re claim 8, wherein said substrate has at least one bonding pad coupled to a corresponding one of the plurality of leads with a bond wire (26-29)(Fig 16).

Re claim 10, wherein the current conductor portion has a current conductor portion axis and at least two of said one or more magnetic field transducers are disposed on opposite sides of the current conductor portion axis (Fig 10).

Re claim 11, wherein at least two of said one or more magnetic field transducers are rotated relative to each other for providing predetermined voltage output polarities (Fig 10).

Re claim 12, wherein at least a portion of said current conductor portion has a T-shaped cross section (Fig 9).

Re claim 14, further comprising at least one amplifier disposed on said substrate [0016].

Re claim 15, wherein the at least one amplifier provides an output signal proportional to a sum of signals generated by at least two of said one or more magnetic field transducers [0016].

Re claim 16, wherein the at least one amplifier forms a summing arrangement coupled to four of said one or more magnetic field transducers [0016].

Re claim 17, further comprising a flux concentrator (3, 21) disposed proximate said one or more magnetic field transducers.

Re claim 18, further comprising a flux concentrating layer (3, 21) disposed proximate the second surface of said substrate.

Re claim 38, wherein said current conductor portion has an edge bounding a surface of said current conductor portion, and wherein said one or more magnetic field transducers are disposed on the first surface of said substrate proximate to said current conductor portion and in a position such that neither the edge of said current conductor portion nor the surface of said current conductor portion overlaps said one or more magnetic field transducers (Fig 2).

The teaching as discussed above does not disclose wherein each one of the leads has a bend in a direction selected to result in each one of the leads being closer to the first surface of the substrate than to the second surface of the substrate throughout the length of the lead (re claims 1, 33), wherein said substrate is coupled to said lead frame with a selected one of a solder ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder bump, a gold stud bump, a polymeric conductive bump, or an anisotropic conductive paste coupled to a corresponding one of the

plurality of leads (Re claims 9, 36, 37), wherein at least a portion of said current conductor portion has a rectangular cross section having a minimum dimension less than a thickness of said lead frame (re claim 13, 32).

Popovic et al teach the use of the bent leads for mounting to a circuit board (col. 3, lines 58-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to bend a portion of the leads of JP 2002-040058 for the purpose of mounting to a circuit board.

Popovic et al teach the use a solder ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder bump, a gold stud bump, a polymeric conductive bump, or an anisotropic conductive paste (6) for connecting to a lead frame (col. 2, lines 60-65)(Fig 2), It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bond wire of JP 2002-040058 by employing the solder ball, gold bump, eutectic and high lead solder bump, no-lead solder bump, gold stud bump, polymeric conductive bump, or the anisotropic conductive paste for the purpose of easily connecting to a lead frame

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the thickness of the lead of JP 2002-040058 for intended use, since such a modification would have involved a mere change in the size of the leads. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Allowable Subject Matter

The indicated allowability of claims 1, 29 is withdrawn in view of the newly discovered reference(s) to JP 2002-040058

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung V. Ngo whose telephone number is (571) 272-1979. The examiner can normally be reached on Monday to Thursday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571) 272-2800 EXT 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HVN
06-21-07

Hung V Ngo

HUNG V. NGO
PRIMARY EXAMINER